



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
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MAY 17 2018

Refer to NMFS No: WCR-2018-9664

Ms. Elizabeth Berger
Acting Forest Supervisor
Six Rivers National Forest
1330 Bayshore Way
Eureka, CA 95501

Re: Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Western Klamath Restoration Partnership Somes Bar Integrated Fire Management Project

Dear Ms. Berger:

On April 25, 2018, NOAA's National Marine Fisheries Service (NMFS) received your request for a written concurrence that the Six Rivers National Forest's (SRNF) Western Klamath Restoration Partnership (WKRP) Somes Bar Integrated Fire Management Project (project) in the Middle Klamath River watershed is not likely to adversely affect (NLAA) the Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*) Evolutionarily Significant Unit (ESU) (70 FR 37160, June 28, 2005), and the SONCC coho salmon ESU critical habitat (64 FR 24049, May 5, 1999) designated under the Endangered Species Act (ESA). This response to your request was prepared by NMFS pursuant to section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.

NMFS also reviewed the proposed project for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. We have found that the proposed program will not adversely affect EFH. SRNF must reinitiate EFH consultation with NMFS if the proposed project is substantially revised in a way that may adversely affect EFH (50 CFR 600.920(l)). This concludes the MSA portion of this consultation.

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public



Law 106-554). This concurrence letter will be available through NMFS' Public Consultation Tracking System (<https://pcts.nmfs.noaa.gov/pcts-web/homepage.pcts>). A complete record of this consultation is on file at our Northern California Office in Arcata, California.

Proposed Action

The SRNF and WKRP propose to reduce fuels and implement prescribed burning along critical fuel breaks and access routes, and within sensitive cultural, archaeological, and natural sites. The project encompasses a series of phased entry, integrated fuels reduction and ecological restoration treatments for 15 years with the intent that fire suppression tactics would no longer be the primary choice for fire managers in the near future.

Project implementation is planned to begin in the fall of 2018. The Project duration is anticipated to be phased over 15 years, as funding becomes available. An implementation strategy was developed that entails entering identified areas and first pretreating crown and ladder fuels that would hamper safe application of prescribed fire. The order of operations for fuels reduction would begin with lowering and altering crown fuel distribution through the use of mechanical treatments. Next, manual treatments of understory ladder reduction would be applied either as a follow-up to mechanical treatments or as an initial entry. Prescribed fire would be the last entry in mechanically treated areas, the second entry in manually treated areas and, the first/only entry in those locations where fuel conditions would support prescribed fire with no additional treatments.

The following describes the types of actions/treatments that were collaboratively developed for this project. A complete description of the activities with maps and BMPs is available in the SRNF's Biological Assessment (BA) for this project (SRNF 2018).

Vegetation and Fuel Treatments

The proposed action includes pre-treating areas where crown and/or ladder fuels would hamper safe application of prescribed fire. The phased approach may start with mechanical vegetation removal, followed by manual reduction of understory fuel ladder vegetation, and then followed by prescribed burning. Where crown and ladder fuels are not excessive and/or no access exists, initial entry would commence with prescribed burning. After each phase or entry, the areas are assessed to determine what follow up treatment is needed for the entire unit or portions of each unit to be ready for prescribed burning.

Mechanical Treatments: For 106 units¹, the first entry is pretreating crown and ladder fuels through thinning of commercial (sawlogs, pole and firewood) and noncommercial vegetation on 1,420 acres using ground-, cable- and road-based heavy equipment (e.g., yarders, tractors, masticators). These same units would then be treated manually to reduce ladder fuels (i.e., limbs and brush) to get the areas ready for eventual prescribed burning.

- All predominant and dominant trees within the project will be retained.
- Mechanical treatment in non-plantation areas where no history of regeneration harvest exists, trees of interest² will be selected.
 - Important cultural and ecological plant species would be targeted for enhancement wherever possible. For example, older stands where larger black and

¹ "unit" is used to describe an area on the map and does not indicate a type of treatment.

² Trees of interest are any identified species in a unit where management occurs to promote their health and vigor.

white oak or sugar pine are being encroached by other less fire tolerant conifer species, efforts would be aimed at culturing around these more fire tolerant species to promote their health and vigor and to help ensure these species continue to thrive in the project area.

- Masticators will be used on 187 acres and will reduce fuel loading on and adjacent to linear features, including roads and former skid trails. In essence, masticators will create a path through dense plantations from which crews can conduct planned burning operations. Mastication could occur in 18 acres in the outer 80 feet of Riparian Reserves along exiting roads and skid trails.
- Activity fuels or cut small diameter trees, shrubs, and existing slash, would be manually piled, jackpot or lopped and scattered depending on fuel loading conditions.

Riparian Reserve Areas: Of the total 1,420 acres to be treated mechanically, 146 acres are located within Riparian Reserves, with less than 0.5 acre adjacent to coho salmon occupied habitat. Stream Riparian Reserves for this project consist of the perennial, intermittent or ephemeral streams and the area on each side of these stream channels ranging between 160 feet slope distances for non-fish bearing streams (these streams have a definable channel and evidence of annual scour or deposition) to 320 feet slope distances for fish bearing streams. Forested ponds, wetland features and associated aquatic vegetation have designated equipment exclusion zones buffered to a slope distance of at least 25 feet. Geologically unstable areas are also considered Riparian Reserves and are included with streams and ponds in total acreages.

- No heavy equipment will be allowed to enter within the inner 80 feet of non-fish bearing stream riparian buffers or inner 240 feet of fish bearing stream buffers (with the exception of existing roads that cross stream channels).
- Where mechanical treatments occur within the outer 80 feet of the Riparian Reserve canopy cover within the treated area would not be reduced below 60 percent.
- No new landings or disposal sites are located within Riparian Reserves.
- Equipment would only enter the outer 80 feet of Riparian Reserves found within plantations or previously harvested units, where slopes are less than 40 percent.
- No heavy equipment will be allowed to enter within the inner 80 feet of non-fish bearing Riparian Reserves, or the inner 240 feet of fish bearing Riparian Reserves throughout the entire project area.
- In areas mapped as large deep-seated earthflows, mechanical ground disturbance will occur only within the dormant area as determined by the forest geologist. Any soil compaction will be treated with ripping or subsoiling compacted areas to restore infiltration capacity, and run-off will be controlled by installing water bars on skid trails and landings.
- Active landslides, inner gorges, and active areas within large deep-seated earthflows that display recent active landslide features such as active scarps, tension cracks, very hummocky topography with leaning or distorted trees, or recent (bare or unvegetated) disruption by landslide activity, will be excluded from ground-based mechanical

treatments. These features will be flagged in the field as “no-touch” areas to be excluded from units and include buffer distances prescribed by the forest geologist that prohibit removal of rooted vegetation by mechanical methods.

- Any heavy equipment that operates within the Riparian Reserves will use linear passes and no turning of machinery so that soils will not be displaced or compacted. The use of modern equipment with tires maybe used to reduce, or avoid soil displacement and compaction during implementation.
- Endlining of the outer 80 feet of Riparian Reserves occurs from temporary or system roads and landings that are located outside of Riparian Reserves.
- Canopy cover within the outer 80 feet of Riparian Reserves would not be reduced below 60 percent. There would be no change in Riparian Reserve canopy cover in the inner 80-240 feet or in manual-only treatment units.

Manual Treatments: Hand-held equipment (e.g., chainsaws, loppers) will be used to cut, limb, or girdle small-diameter ladder fuels (less than 6” in diameter) and to break up the continuity of high concentrations of shrub species. This would include the up to 1,420 acres that are also receiving mechanical treatments, and an additional 2,658 acres (i.e., manual treatment is the first entry for 195 additional units) where smaller diameter fuel reduction is necessary to prepare the ground for follow up prescribed burning. Prior to any prescribed burning, all strategic fire control features (fuel breaks and hand lines) would be constructed.

- Manual treatments will generally occur in former plantations where there is no opportunity for commercial products such as firewood or sawlogs and within exclusion zones where mechanical treatments are not permitted. This can be due to the topography (not conducive to heavy equipment access) or in larger more mature stands where only smaller diameter fuel reduction is necessary to prepare the ground for follow up prescribed burning.
- Small-diameter trees and shrubs, generally up to 6-inch diameter breast height (dbh), would be manually cut from beneath overstory trees, and/or aggregations of small-diameter Douglas-fir plantation trees would be thinned or limbed to reduce density of intermediate and suppressed trees.
 - Manual treatments would be implemented within select Riparian Reserve areas. Most of the perennial and intermittent streams in the project area provide a natural obstacle to the rate of spread and consumption from understory/jackpot burning and may not require much manual reduction of fuels prior to prescribed burning.
 - Where thinning of small-diameter ladder fuels is needed near stream courses to ensure positive prescribed burning effects of the overall unit, vegetation that provides stream bank stability would not be removed.
- Maximum residual spacing of trees will range between 16 feet to 24 inches based on the type of unit. Important cultural and ecological plant species would be targeted for enhancement wherever feasible.
 - Riparian Reserves intermediate canopy closure would be maintained at 60 percent and overstory canopy would not be affected by manual treatments.

- Slash generated would be hand piled and burned (or scattered where concentrations are low) in preparation for understory or jackpot burning. Hand pile dimensions are up to 15 cubic feet, piled on slopes up to 65 percent, and away from the drip line of predominant trees. Piles are covered with paper and ignited during favorable weather conditions.
 - Within Riparian Reserves - seek a balance between number and location of piles near streams to protect adjacent large downed woody debris, key habitat components while still reducing fuel concentrations.
 - Within Riparian Reserves construct piles greater than 25 feet from the defined channel; consider slope and potential for sediment delivery when locating the pile.
- Follow-up manual treatments (2nd entry) will also occur to reduce fuel loads following mechanical and mastication units, where needed, to get the units ready for prescribed fire.
- Feather manual treatments within the inner 80 or 240 feet of Riparian Reserve by retaining 30-40 percent of the small vegetation.

Burning and Prescribed Fire: Prescribed fire would occur after jackpot piles and hand piles are burned. Prescribed fire could also occur on the remaining 37 units or 1,491 acres where vegetation removal or reduction was not needed as prior treatments. Burning (including hand pile, understory and jackpot burning) will occur on days with favorable atmospheric, weather, and fuels conditions to reduce risk of escapement and minimize flame lengths according to the Burn Plan developed.

Not every acre of the project area would be treated with prescribed burning. Prescribed fire would be used to break up the continuity of fuel loading and maintain existing openings where appropriate. Prescribed burning would be conducted only after the fuel breaks and other treatment have been completed. In addition, hand lines would be constructed by manual methods prior to ignition.

- Understory burning of surface and some ladder fuels under the canopy layer will occur when the controlled application of prescribed fire within a determined boundary (before or after pretreatment and to maintain conditions in the long term) can be implemented.
- Jackpot burning will take place by covering and burning fuel concentrations of natural and treatment-generated fuels found within a given perimeter.
- Prescribed burning would target the reduction of small diameter ladder fuels and breaking up the continuity of excessive fuel build up. Prescribed burning would retain 50-90 percent of existing duff layer.
- Important cultural and ecological plant and tree species would be protected from adverse fire effects, either by installing temporary fire lines or altering ignitions patterns.
- Portions of the project area that are not accessible due to very steep terrain or they are already in the condition (more open stands, no ladder fuels) may achieve the desired effects from burning without any pre-treatments.
- Follow up entries and future maintenance will require understory or jackpot burn treatments, which would occur approximately every 2-7 years according to site specific objectives. However, this recurrent interval would decrease over time as the stand composition and fuel models shift from higher to lower fuel loading.

- No ignition would occur within Riparian Reserves except the following circumstance:
 - Within Riparian Reserves burning of hand piles (located a minimum of 25 feet from stream channels) will be minimized, but may be used in some areas to treat fuels.
- Riparian Reserves would not be directly ignited; however, fire may be permitted to back or flank into Riparian Reserves with the condition that fire effects would be of low to moderate severity.
- In rare circumstances [potential for burning material to roll down into Riparian Reserves, safety, and protection of resources (plants, cultural)] hand lines in Riparian Reserves can be constructed where necessary to minimize undesired fire effects.
- Prescribed fire will be allowed to move freely across the landscape under prescription and Burn Plan guidance. Ignition in sensitive areas, such as active landslide features, would be avoided. Concentrations of manually cut fuels would be moved at least two rooted tree widths, or 30-50 feet away from active landslide features prior to ignition.

Road-Based Fuel Reduction: Fuels will also be reduced along roads in the planning area to provide cost effective linear features to stop wildfires and control prescribed fires. To allow for safe access and egress and ease of prescribed fire implementation, mechanical vegetation removal, followed by manual vegetation reduction will occur about 100-300 feet from roadsides within the project area. Fuels would be treated in identified units alongside roadways through thinning of commercial and noncommercial vegetation.

Strategic Fire Control Features: Strategic ridges identified throughout the project area will be used as control features for prescribed burning and future wildland fire response tactics. The initial establishment of fuel breaks, as well as the reuse of a dozerline from a fire in 1987 as an existing fuel break, will be used to alter the behavior of wildland fire entering the fuel-altered zone by reducing surface and crown fire behavior. Coupling fuel breaks with area-wide fuel treatments is expected to reduce the size, intensity, and effects of wildland fires within this portion of the lower-mid Klamath River basin. Establishment of strategic firelines will include a total of approximately 105,524 feet of ridgetop modified shaded fuel breaks and placement of approximately 145,298 feet of hand lines.

Hand line locations have been identified. Hand lines would be a 6 foot chainsaw brush cut swath and a 2 foot wide path cut down to bare mineral soil.

- Only small diameter trees (under 6" dbh) would be cut during hand line installation.
- Hand pile burning or lop and scattering of fuels may occur.
- Hand lines will be constructed with waterbars and left in a free draining condition.

Table 1 summarizes the integrated fire management treatments and connected actions. The first entry treatment along with project and Riparian Reserve acres are shown. The final column identifies the 2nd and 3rd entry treatments that could occur based on the unit specific fuel conditions after the first initial entry.

Table 1. Summary of Integrated Fire Management Treatments (SRNF 2018).

Initial Treatments	Initial Area and/or Length for total units	1 st Entry Within Riparian Reserves (RR)	Follow Up Treatments 2 nd and 3 rd Entries
Vegetative Treatments –Total Acres	Total Acres	Outer 80 feet of RR only, regardless of whether total each side RR is 160 or 320 feet.	
Thinning - Mechanical - cable system	176	45	Manual, Prescribed Fire
Thinning - Mechanical - ground-based	1,058	83.5	Manual, Prescribed Fire
Mastication – along former skid roads and logging roads to facilitate manual treatments as identified on maps.	187	17.9	Manual, Prescribed Fire
Total Mechanical Acres	1,420	146.4	
Manual: no vegetation cut over 6" dbh, ladder fuels removed	2,658	1,664.3	Prescribed Fire
<ul style="list-style-type: none"> Pile Burning is included under Manual treatments acres 	n/a		n/a
Prescribed Fire – would occur after strategic fire control features have been constructed.	1,491	No ignition within RR (Exceptions based on safety and site specific conditions are described in the BA (SRNF 2018); (1074.3 – incl geologic RRs)	Maintenance Burning
Total Treatment Acres	5,570	3,605	
Strategic Fire Control Features	Feet	Within RRs	Follow Up Treatment
Control Features are in place prior to any prescribed burning			
Ridgetop Shaded Fuel break – 100' wide chainsaw brushing cut 6-8" dbh supported by a 2' wide handline cut down to bare mineral soil –water bar	105,524	39,261	Maintain Fuel breaks
<ul style="list-style-type: none"> Existing Fireline Maintenance – 1987 Dozer line – maintain as shaded fuel break water bar 			
Hand lines 6' wide chainsaw brushing cut supported by a 2' wide hand line cut down to bare minimal soil –water bar	145,298	75,211	Maintain strategic hand lines

Associated Activities

Landings: Mechanically treated areas where commercial logs are anticipated will require the use of landings and/or disposal areas. Landings are either existing or new sites between ¼ and ½ acre located near Forest Service system and temporary roadways. A maximum of 160 landings totaling 76 acres may be used during project implementation.

- No new landings or disposal sites will be placed within Riparian Reserves.
- Preexisting landings will be used and existing landings within Riparian Reserves can be used if they are located within the outer 80 to 240 feet, and do not have hydrologic connectivity to the stream channel.
- Unstable areas or excessive excavation shall be avoided when developing the new landings.

- Rehabilitate landings by decompacting, outslowing, and mulching with slash or seeding with native grasses. Landings will be left in a free draining condition, free of berms or other obstacles that would concentrate water during storm events.

Roads: Forest Service system roads and temporary roads will be used to implement the project. All roads would require routine or deferred maintenance for the proposed project activities and would be consistent with Forest-wide Routine Road Maintenance standards. Bringing roads up to standards often requires some site-specific repair and reconditioning using heavy equipment (e.g., graders, excavators, and dump trucks). All roads would be brushed (using hand-held equipment) to improve visibility and passage.

Approximately 29 miles of Level 3 or 4 roads will be used as major haul roads for the project, which are typically paved or aggregate surfaced and often connect to Highway 96.

Approximately 12.5 miles of Level 2 roads will be used, which are generally native surfaced or may have some crushed aggregate, and these roads would be closed annually to vehicle traffic during the wet season. In addition:

- Repair of one culvert on Road 13N14A located in an intermittent stream reach of Nantucket Creek (Donahue Focal Area) and is approximately 2 miles upstream of the Klamath River and occupied coho salmon habitat. A properly sized culvert (to meet the predicted 100-year flood flows) and clean rock and fill will be installed. The roadbed will be outslowed at the crossing to minimize diversion potential. This work would only occur during the dry season and therefore would not require any dewatering prior to installation as the channel would already be dry.
- Roads would receive routine road maintenance to facilitate access for equipment and workers. All ground disturbing work would occur during low flow periods between July 15-Aug 30.

Temporary Roads: About 10.4 miles of existing temporary road will be used for only mechanical and mastication treatments. Because these roads are on existing alignments, some ground disturbance is anticipated and construction activities are principally vegetation removal, road surface preparation, and erosion prevention in the form of water bars and rolling dips. New temporary road construction is limited to approximately one-half mile for the project.

All temporary roads will be winterized and closed to vehicle traffic every rainy season, typically October 30 to June 1, for the life of the project. All temporary roads would be left in a free draining condition during the life of the project, and decommissioned after the project.

Decommissioning includes installing water bars, installing a physical barrier to prevent motor vehicle access, and seeding with native grasses where appropriate.

- No new temporary roads are found within Riparian Reserves.
- Of the existing 10.4 miles of temporary roads, four acres are found within Riparian Reserves, with only 1 stream crossing located upstream of salmonid habitat.

Legacy site treatments: A total of 1.1 miles of legacy logging roads found in the project area will be restored. Restoration of legacy roads includes removing culverts and associated fill, storing fill in stable locations, placing water bars or dips to prevent water from concentrating on the roadbed and seeding with native grasses. All restoration work would occur during the dry

season and use erosion control practices. No legacy roads are found adjacent to or within anadromous salmonid habitat.

Hazard Tree Removal: Hazard trees include dead or dying trees, dead parts of live trees, or unstable live trees (due to structural defects or other factors) that are within striking distance to people or property. Hazard trees have the potential to cause property damage, personal injury or fatality in the event of a failure. Incidental felling of hazard trees would only occur in the event they pose an immediate safety risk to firefighters or a containment risk during implementation.

- When roads cross stream channels, hazard trees within Riparian Reserves would be felled if they pose a safety risk.
- Roadside hazard trees may be reserved for use for fisheries restoration, decked and stored, sold, or left on site.
- If removal of the hazard tree occurred (restoration, decked, sold), no equipment would leave the roadbed and any ground disturbance would be water barred or mulched.
- Removal of hazard trees would occur on existing roads.
- Treatment of slash associated with hazard tree removal may include hand pile, jackpot pile or understory burning, chipping, and/or lop and scatter.

Water Drafting: Water drafting will occur at 30 preexisting sites as shown in Figure 1 below. Although all water drafting sites will occur outside of occupied coho salmon habitat, the NMFS Water Drafting Guidelines will be followed for rates of withdrawal, and where applicable, for screening.

- Water drafting operations are restricted to one hour after sunrise to one hour before sunset.
- Streams and pools where water is deep and flowing will be used, as opposed to streams with low flow and small isolated pools.
- Pumping rate shall not exceed 350 gallons per minute.
- The pumping rate shall not exceed ten percent of the stream flow as measured by a visual observation of water level in relation to a moss line or rock to determine if stream level is dropping due to pumping.
- Only one truck would be drafting at a time and would move during the day following project activities.
- Operators shall keep a log on the truck containing the following information: Operator's Name, Date, Time, Pump Rate, Filling Time, Screen Cleaned (Y or N) Screen condition, and Comments
- Ti Creek (13N11 MP 5.6) requires fish screen for resident trout.

Wet Weather Operations: The project is proposed to take place during the Normal Operating Season (NOS) defined as May 1 to October 31. All ground disturbing activities, whether inside or outside of the NOS, will be implemented according to the Forest's Wet Weather Operations

Standards. Standards in these WWOS guides are further clarified in the WWOS Field Guide and BMP "Yardsticks" and "Checklist" [(see BA, Appendix D (SRNF 2018)].

Monitoring: The project will be monitored using the Best Management Practices (BMP) Effectiveness Program (USDA Forest Service 2012). The basis of the effectiveness monitoring program is to: 1) ensure application of standards and guidelines related to BMPs, and 2) test BMP effectiveness and recommend changes/improvements if necessary. Reports are prepared annually and will be sent to NMFS. The WKRP and SRNF have also created a multiparty monitoring (MPM) plan to monitor implementation and effectiveness of the project. The overarching goal of this monitoring effort is to evaluate the treatments in achieving desired condition and function including reintroduction of fire as a step towards restoring and maintaining resilient ecosystems, communities, and economies.

Action Area

Based on the description and maps included in the BA (SRNF 2018), the action area for this project includes 5,570 acres of public land located on the Orleans and Ukonom Ranger District of the Six Rivers National Forest, and is found within three 6th field watersheds, Ti Creek watershed (13,623 acres), Reynolds Creek watershed (34,611 acres), and Boise Creek watershed (31,343 acres). These three 6th field watersheds contain the four focal vegetation treatment areas (Ti Bar, Patterson, Rogers and Donahue focal areas), water drafting sites and National Forest Transportation System (NFTS) and non-system roads found along the lower-mid Klamath corridor, and all major tributaries such as Stanshaw and Sandy Bar creeks. The action area also includes the mainstem Klamath River at river mile 55.5 near the mouth of Boise Creek, upstream to approximately river mile 82, near the mouth of the Kennedy Creek. The Ti Bar, Patterson and Rogers focal areas extend from the Klamath River corridor upslope to the upper headwaters of small adjoining tributaries. The Donahue focal area is in a mid-slope position, upslope of the Klamath River corridor.

Action Agency's Effects Determination

Fuel reduction, prescribed fire and associated activities as described above may affect SONCC coho salmon or its designated critical habitat by small, temporary increases in turbidity, or by input of petroleum products into stream courses. Most of the project activities will occur upstream of occupied habitat, and water drafting will not occur in occupied habitat. SRNF has determined that the proposed project will not adversely affect SONCC coho salmon or its designated critical habitat.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is not likely to adversely affect listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

SONCC coho salmon are currently distributed within the mainstem Klamath River, and within the lower portions of tributaries within the action area. While juvenile coho salmon have been observed in the lower portions of these tributaries, these juvenile fish are likely non-natal, as there is a lack of spawning habitat within tributary streams in the action area (SRNF 2018). Spawning is known to occur within the mainstem Klamath, Ti and Rogers creeks. Direct observations (SRNF 2018) in the action area reveal young of the year and 1+ coho salmon juveniles using the lowermost reaches of tributaries, and rearing in Klamath River cold water refugia at the mouths of tributaries. The section of Klamath River mainstem within the action area is used primarily as a migration corridor, but also provides spawning and holding areas for coho salmon adults, facilitates movement of juveniles into and between tributaries, provides rearing habitat for fry and juveniles produced in tributaries, and provides habitat for smolts as they emigrate from tributaries and migrate to sea.

Culverts under Highway 96 block fish passage in Kennedy, Stanshaw, Sandy Bar and other tributaries within the action area. Upstream of Highway 96, most of the tributaries steepen to large cobble and boulder dominated stream channels with cascades and waterfalls that also block passage. Table 2 shows the limited coho salmon in the tributaries within the action area.

Table 2. Summary of coho salmon occupancy within tributaries in the action area.

Action Area Tributaries: Upstream maximum coho salmon distribution from their confluence with the Klamath River mainstem (Distance in river miles)										
Burns Creek	Kennedy Creek	Ti Creek	Sandy Bar Creek	Stanshaw Creek	Rogers Creek	Unnamed tributary (North of Teneyck Creek)	Teneyck Creek	Natuket Creek	Donahue Flat Creek	Total Trib miles
0.1	0.1	1.2	0.3	0.3	0.9	0.2	0.03	0.2	0.2	3.53 miles

Since most of this project occurs upstream of occupied coho salmon habitat, only 19 units out of a total of 342 treatment units are found adjacent to occupied habitat.

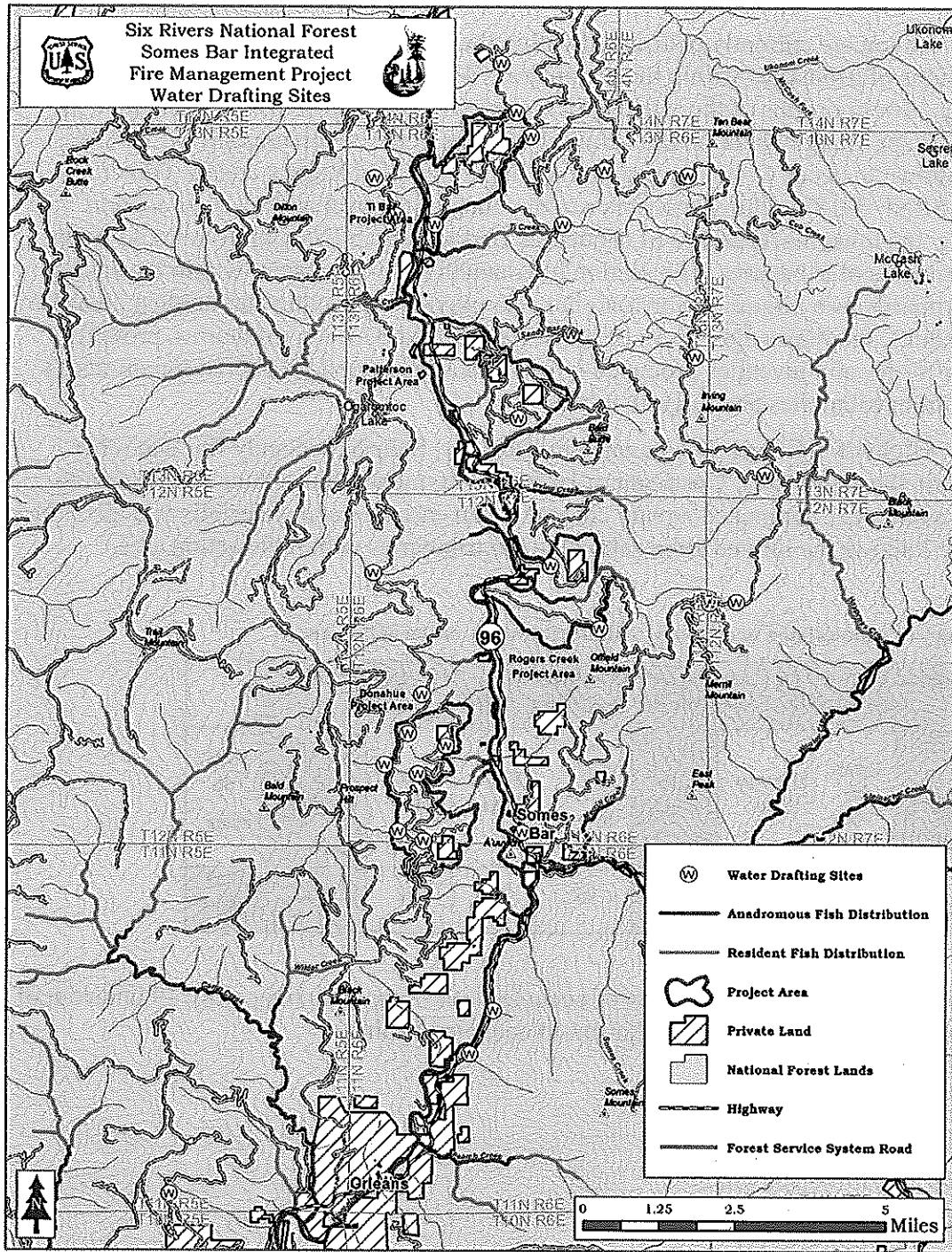


Figure 1. Map of Project Area with Fish Distribution, Roads and Water Drafting Locations

Effects of the Action on Listed Species:

The project has the potential to result in sediment delivery to the stream channel network through ground disturbing activities and the delivery of petroleum products to the stream network through the use of heavy equipment or power tools within and near Riparian Reserves. However, the project incorporates numerous BMPs, project design features, and minimization measures to

prevent or minimize sediment or petroleum product delivery to the stream network. Although the project includes vegetation removal, an increase in stream temperatures is not expected to occur. Manual thinning of small trees and shrubs will not result in changes to canopy cover, shade or stream temperatures, as over story canopy that provides shade to streams will not be affected by the treatment.

Sediment: The effects of the project may include small, temporary increases in mobilized sediments through ground disturbing activities, such as mechanical removal of vegetation, use of roads to haul logs, by felling trees and exposing soils to erosion, or by mobilizing soils after vegetation has been burned. However, the project has been designed to minimize sediment displacement and delivery to the stream network.

The limited amount of ground disturbance, project design features and BMPs will minimize sediment delivery to occupied habitat. Any increases in suspended sediment and turbidity are expected to be minor and temporary, due to the small footprint of mechanical disturbance in the outer portion of Riparian Reserves, the work window (i.e., dry season, low flow conditions), and that ground disturbing activities will not occur in the inner 80-240 foot portion of Riparian Reserves, and will occur at least 0.5 miles upstream of occupied coho salmon habitat.

As described in the BA (SRNF 2018), Ivanovich and Hamid (2014) reviewed information about aquatic ecosystem quality over a wide range of sediment concentrations, durations of exposure, species, life stage and severity of ill effect for fish. Using a decision tree method, they determined that exposure duration is the most important parameter for significant severity of ill effect predictions. For the project, small pulses of sediment delivery may occur within the first storm events of the winter (minimized by lack of ground disturbance within the inner Riparian Reserves and BMPs), would be a small percentage of overall turbidity compared to background, and would not occur during summer months when juvenile coho salmon are seeking cool water refugia and would be more sensitive to displacement. Therefore, due to the project location (mostly upstream of coho salmon distribution and critical habitat), timing (dry season implementation), and other proposed BMPs, project design, and minimization measures for reducing sediment, only small amounts of sediment may be delivered to stream channels during the winter season. Thus, the potential for exposing coho salmon (all life stages) to increased suspended sediment or turbidity caused by project activities is negligible, and the expected response of salmonids to a negligible increase in turbidity will be insignificant.

Petroleum Products: With any heavy equipment and power tool use there is the possibility that petroleum products may enter the stream network, either through spills or leaks. Spill plans and BMPs for managing petroleum products should prevent or minimize the probability of runoff of hazardous materials in the unlikely event of a spill or leak associated with power tool or heavy equipment use. Therefore, the potential for exposing any life stage of coho salmon to petroleum products is discountable since project operations would adhere to all BMPs pertaining to containment and prevention of petroleum product spills and since any spills would not reach stream courses.

Effects of the Action on Critical Habitat

The program will have very limited effects to critical habitat from ground disturbing activities causing a negligible increase in turbidity, and from the small possibility of petroleum products entering the stream network and decreasing water quality. However, as described in the Effects to Listed Species section above, and as described in the BA (SRNF 2018), the likelihood of sediment entering the stream is low and the amount of sediment would be very small, thus we do not expect increased sediment to settle in pools or adversely affect downstream spawning, rearing, or migration habitats. Therefore, the effects of project-related sediment on critical habitat are insignificant. As previously described, the chance of petroleum products entering the stream is discountable.

Conclusion

Based on this analysis and our review of the documents provided by SRNF, NMFS concurs with SRNF that the proposed project is not likely to adversely affect threatened SONCC coho salmon, or its designated critical habitat.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by SRNF or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA portion of this consultation.

Please contact Ms. Leslie Wolff in Arcata, California at (707) 825-5172, or via email at Leslie.Wolff@noaa.gov, if you have any questions regarding this consultation.

Sincerely,


for Barry Thom
Regional Administrator

cc: Karen Kenfield (SRNF)
NMFS AR#: 151422WCR2018AR00097

REFERENCES CITED

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